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CASELLA & HESPOS
274 MADISON AVENUE
NEW YORK, NY 10016

EXAMINER	
LEUNG, JENNIFER A	
ART UNIT	PAPER NUMBER
1797	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,922	KENNEDY, ROGER	
	Examiner	Art Unit	
	JENNIFER A. LEUNG	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,9,13,14,19 and 32-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,9,13,14,19 and 32-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 June 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6-20-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because "FCU" (see FIG. 1) should be changed to --ECU--. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 33 objected to because of the following informalities: It is suggested that "ECU" be changed to --electronic control unit-- in line 2. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 34 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to what additional structural limitation Applicant is attempting to recite by the apparatus being "effective to regulate the distribution of the at least one fluid reagent in the reaction chamber."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 9, 13, 14, 32, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamashita et al. (EP 0 614 866).

Regarding claims 1, 2 and 32, Yamashita et al. discloses an apparatus (see, e.g., FIG. 6(b)) comprising: a reaction chamber having an inlet (i.e., to disperser head **6**) and an outlet (i.e., to pipe **5**); the reaction chamber being provided with a regulator comprising a propeller (i.e., agitating blades **9**) mounted in the reaction chamber in the region of the inlet; the reaction chamber being provided with at least one perforated element (i.e., perforated disk **7A-2**) that is capable of allowing the passage of fluid material therethrough; and the propeller **9** being mounted beneath the perforated element **7A-2**.

Regarding claim 9, Yamashita et al. discloses that the reactor may be provided with a heating means (e.g., an electric heater, not shown, attached to the outer surface of the reactor; see page 9, lines 56-58; see also page 14, lines 56-58). Since the heating means heats the contents of

the reactor, the heating means will be capable of indirectly heating the at least one perforated element **7A-2** and the propeller **9** contained within the reactor.

Regarding claim 13, the propeller is connected to a power supply for driving the propeller (i.e., the agitator is electrically powered; see page 9, lines 40-42).

Regarding claim 14, propeller **9** comprises a plurality of vanes (i.e., agitating blades; page 10, line 57 to page 11, line 6). As seen in FIG. 6(b), the vanes are of an ellipse shape.

Regarding claim 34, as best understood, the apparatus of Yamashita et al. is effective to regulate the distribution of at least one fluid reagent in the reaction chamber **4**.

Regarding claim 35, Yamashita et al. further discloses a process of conducting a chemical reaction using the apparatus set forth in claim 1 (e.g., the hydration of cycloolefin to produce a cyclic alcohol; see page 4, lines 6-12; page 9, lines 31-42; Abstract).

Instant claims 1, 2, 9, 13, 14, 32, 34 and 35 read on the apparatus and process of Yamashita et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al. (EP 0 614 866) in view of Paladino (US 2,703,304) and Roecknel et al. (EP 0 027 911).

Yamashita et al. discloses that the propeller has a longitudinal shaft defining a rotation axis and at least one blade attached to the shaft (page 10, line 57 to page 11, line 6). Yamashita

et al., however, is silent as to the propeller being tilted at an angle of from 0.5° to 60° with respect to the longitudinal axis of the reactor.

Paladino (see figure) teaches a chamber (i.e., defined by container **1**) comprising a propeller, wherein the propeller has a longitudinal shaft **13** defining a rotation axis and at least one blade at **12** attached to the shaft, the propeller being tilted at an angle α of "preferably a few degrees" and "slightly offset" with respect to the longitudinal axis of the chamber (see column 3, lines 10-17; column 2, lines 64-67). The definition of "few" is not many, but more than one. Thus, the angle α lies within the claimed range.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to configure the propeller in the apparatus of Yamashita et al. to be tilted at an angle within the claimed range, because a tilted propeller would provide intimate mixing and homogenizing of the fluids, while preventing the formation of foam, as taught by Paladino (column 1, lines 15-32).

In addition, Yamashita et al. discloses that the propeller preferably produces a downward flow (see page 11, lines 7-14). Yamashita et al., however, does not indicate if the blades may be attached to the longitudinal shaft "by means of an elongated blade root".

Roecknel et al. teaches a propeller (see FIG. 10) having a longitudinal shaft **530** defining a rotation axis and at least one blade **532** attached to the shaft, wherein the blade is attached by means of an elongated blade root. The propeller produces a downward flow. Such propeller may be used as an alternative to the propeller shown in FIG. 11 for providing the same result.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute a propeller, with blades attached by means of an elongated root, for the

propeller in the apparatus of Yamashita et al., because such propeller would have been suitable for providing satisfactory gas-liquid contacting and downward flow, as taught by Roeckel et al. Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

6. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita et al. (EP 0 614 866) in view of Mineo et al. (US 5,660,467).

Yamashita et al. fails to disclose an electronic control unit, or ECU, associated with the apparatus for controlling the degree of heating or speed. Mineo teaches an apparatus (see FIG. 1; generally, column 3, line 39 to column 4, line 41) comprising a propeller (i.e., blades **3** attached to rotary shaft **9**) mounted in a reaction chamber (i.e., container **1**), wherein an ECU (i.e., control unit **7**) is associated with the apparatus, for controlling the speed of the propeller. It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide an ECU in association with the apparatus of Yamashita et al., because the ECU would allow for the rotational speed of the propeller to be automatically regulated, e.g., between a high level and a low level, as taught by Mineo et al.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re*

Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1, 2, 9, 13, 32 and 34 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 7,451,752 (hereafter US '752). Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant application and US '752 claim essentially the same structure.

US '752 similarly claims an apparatus comprising a regulator comprising a propeller mounted in the region of an inlet to a chamber (i.e., in the inlet manifold of an internal combustion engine; claim 1); the chamber inherently having an outlet (i.e., for exhaust); at least one perforated element, wherein the propeller is beneath the perforated element (claim 1); a power supply for driving the propeller (claim 1); and heating means for heating the perforated element and propeller (claims 1-8).

8. Claims 1, 2, 14, 19, 32 and 34 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-13 of U.S. Patent No. 7,409,948 (hereafter US '948). Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant application and US '948 essentially claim the same structure.

US '948 similarly claims an apparatus comprising a regulator comprising a propeller

mounted in the region of an inlet to a chamber (i.e., in the engine manifold of an engine; claim 1), the chamber inherently having an outlet (i.e., for exhaust); and at least one perforated element, wherein the propeller is beneath the perforated element (claims 4, 5). The propeller comprises a plurality of vanes which may be of the claimed shapes (i.e., blades, see claims 1-3, 6-8), wherein at least one blade is attached to a shaft (i.e., longitudinal pin) by means of an elongated blade root (claim 1). The propeller may be mounted with an axis of the propeller within the claimed range (claims 1, 10).

9. Claims 1, 2, 9, 13, 32 and 34 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 7,171,959 (hereafter US '959). Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant application and US '959 essentially claim the same structure.

US '959 similarly claims an apparatus comprising a regulator comprising a propeller mounted in the region of an inlet to a chamber (i.e., in the inlet manifold of an internal combustion engine; claim 1), the chamber inherently having an outlet (i.e., for exhaust); and at least one perforated element, wherein the propeller is beneath the perforated element (claim 1); the perforated element and/or the propeller being heated by a heating means (claims 2-7); and the propeller being connected to a power supply for driving the propeller (claim 1).

10. Claims 1, 2, 9, 13 and 34 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of copending Application No. 12/084,833 (Published as US 2009/0107444). Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications essentially claim the same structure.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

App. No. 12/084,833 similarly claims an apparatus comprising a regulator comprising a propeller mounted in the region of an inlet of a chamber (i.e., in a manifold channel, which output communicates with a cylinder of an internal combustion engine; claims 1, 15, 16), the chamber inherently having an outlet (i.e., for exhaust); and a perforated element (claims 14, 16). The propeller and/or perforated element are heatable by heating means (claims 25, 26), and the propeller is connected to a power supply (i.e., a motor; claim 17) for driving the propeller.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. LEUNG whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A. Leung/
Primary Examiner, Art Unit 1797